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| 09/436,598      | 11/09/1999  | ANDREAS LENNIGER     | GR-97-P-1593        | 6870             |

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EXAMINER

GRAYBILL, DAVID E

ART UNIT

PAPER NUMBER

2827

DATE MAILED: 02/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/436,598

Applicant(s)

LENNIGER ET AL.

Examiner

David E Graybill

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 09 December 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

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A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11-4-2 has been entered.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in

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order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 and 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura (7153906).

At page 1, line 10 to page 2, line 13; and page 6, line 11 to page 7, line 14, applicant admits as conventional the following:

1. A power semiconductor module, comprising: semiconductor components 10 and connecting elements 8; a plastic housing 2 having an interior, an inside, and openings formed therein, said openings having an inner side adjacent said interior; a substrate 4 disposed in said plastic housing defining a housing base of said plastic housing, said substrate containing a ceramic plate 5 having a top side and a bottom side with a top metallization layer 6 disposed on said top side and a bottom metallization layer 7 disposed on said bottom side, said top metallization layer facing said interior of said plastic housing being patterned in order to form conductive interconnects and equipped for and receiving said semiconductor components and said connecting elements; terminal elements 11 in said plastic housing for providing external terminals, said terminal elements being press-fitted into said openings in said plastic housing;

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and wires 8 bonded to said terminal elements and to said semiconductor components.

3. The power semiconductor module according to 1, wherein said terminal elements run approximately parallel to said housing base in said interior of said plastic housing.

4. The power semiconductor module according to 1, wherein said plastic housing includes a frame 9 and a cover.

5. The power semiconductor module according to 4, wherein said terminal elements are disposed in said frame.

6. The power semiconductor module according to 1, wherein said substrate is covered with a potting compound [illustrated in FIG 1].

Although applicant's admitted prior art does not appear to explicitly teach the terminal elements press-fitted into the openings, the product of applicants admitted prior art inherently possesses the structure imparted by this process limitation.

However, applicant does not appear to explicitly admit as conventional a flat inside, the terminal elements having lugs, the terminal elements in the region of the lugs being press-fitted into the openings in the plastic housing, the terminal elements bearing on the flat inside of the plastic housing, and

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the lugs pressing against the inner side of the openings for fixing the terminal elements in position.

Nonetheless, in the English abstract and figures, Nakamura teaches a plastic housing ["resin case"] having a flat inside ["side wall"], terminal elements 10 having lugs [10b and the two lugs formed in the side of 10 and extending upward from 10a], the terminal elements in the region of the lugs being press-fitted into openings [4d and "slots" or "grooves"] in the plastic housing, the terminal elements bearing on the flat inside of the plastic housing, and the lugs pressing against the inner side of the openings for fixing the terminal elements in position. In addition, it would have been obvious to combine the product of Nakamura with the product of applicant's admitted prior art because it would enable easy manufacture of the module.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of applicants admitted prior art and Nakamura as applied to claim 6, and further in combination with Leukel (FR2535898).

The combination of applicant's admitted prior art and Nakamura does not appear to explicitly teach the following:

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7. The power semiconductor module according to 6, wherein said potting compound is formed of a soft potting compound layer and a hard potting compound disposed on said soft potting compound.

Nonetheless, at page 6, lines 11-21, Leukel teaches a product wherein said potting compound is formed of a soft potting compound layer 15 and a hard potting compound 16 disposed on said soft potting compound. Moreover, it would have been obvious to combine the invention of Leukel with the invention of applicants admitted prior art because it would increase package reliability.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of applicant's admitted prior art and Nakamura as applied to claims 1 and 3-6, and further in combination with Leukel(FR2535898).

The combination of applicant's admitted prior art and Nakamura does not appear to explicitly teach that the compound is formed of a soft potting layer and a hard potting layer disposed on the soft layer.

Nonetheless, at page 6, lines 11-21, Leukel teaches a compound formed of a soft potting layer 15 and a hard potting layer 16 disposed on the soft layer. Moreover, it would have been obvious to combine the invention of Leukel with the

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invention of the applied prior art because it would increase package reliability.

Applicant's remarks filed 12-9-2 have been fully considered and are addressed supra and infra.

In response to applicant's argument that applicant has a different reason for, or advantage resulting from, doing what the applied prior art has suggested, it is noted that this is not demonstrative of nonobviousness. In re Kronig 190 USPQ 425, 428 (CCPA 1976); In re Lintner 173 USPQ 560 (CCPA 1972); indeed, the prior art motivation or advantage may be different than that of applicant while still supporting a conclusion of obviousness. In re Wiseman 201 USPQ 658 (CCPA 1979); Ex Parte Obiaya 227 USPQ 58 (Bd. of App. 1985). In any case, the applied prior art teaches the product of the instant invention; therefore, it possesses the same advantages.

***Any telephone inquiry of a general nature or relating to the status (MPEP 203.08) of this application or proceeding should be directed to Group 2800 Customer Service whose telephone number is 703-306-3329.***

Any telephone inquiry concerning this communication or earlier communications from the examiner should be directed to David E. Graybill at (703) 308-2947. Regular office hours: Monday through Friday, 8:30 a.m. to 6:00 p.m.

The fax phone number for group 2800 is 703/308-7722.



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David E. Graybill  
Primary Examiner  
Art Unit 2827

D.G.

30-Jan-03